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BitTorrent tracker

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This article has multiple issues. Please help **improve it** or discuss these issues on the **talk page**.

- This article **needs additional citations for verification**. *(March 2009)*
- This article **may be too technical for most readers to understand**. *(August 2012)*
- This article **contains weasel words: vague phrasing that often accompanies biased or unverifiable information**. *(February 2012)*

A **BitTorrent tracker** is a server that assists in the communication between peers using the BitTorrent protocol. In peer-to-peer file sharing a software client on an end-user PC requests a file, and portions of the requested file residing on peer machines are sent to the client, and then reassembled into a full copy of the requested file. The "tracker" server keeps track of where file copies reside on peer machines, which ones are available at time of the client request, and helps coordinate efficient transmission and reassembly of the copied file. The BitTorrent tracker is also, in the absence of extensions to the original protocol, the only major critical point, as clients are required to communicate with the tracker to initiate downloads. Clients that have already begun downloading a file communicate with the tracker periodically to negotiate faster file transfer with new peers, and provide network performance statistics; however, after the initial peer-to-peer file download is started, peer-to-peer communication can continue without the connection to a tracker.

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Trackers and indexers [edit]

Public trackers [edit]

Public or open trackers can be used by anyone by adding the tracker address to an existing torrent, or they can be used by any newly created torrent. The most popular are OpenBitTorrent, PublicBitTorrent and istole.it.[1] The Pirate Bay operated one of the most popular public trackers until disabling it in 2009 amid legal trouble, opting to offer only magnet links.[2]

Private trackers [edit]

A *private tracker* is a BitTorrent tracker that restricts use, by requiring users to register with the site. The method for controlling registration used amongst many private trackers is an invitation system, in which active and contributing members are given the ability to grant a new user permission to register at the site.[3]

Legal issues [edit]

Main article: Legal issues with BitTorrent

Legal uses [edit]

There are several circumstances under which it is legal to distribute copyrighted material or parts thereof.

- Free distribution. Copyright holders may choose to allow free distribution of their works. Dedicated copyright licenses—usable by anyone who wants to upload their own material—are available for that purpose. Such licenses are often used in situations with large numbers of copyright holders, like in online communities. For example, the Creative Commons license family for free cultural works in text, audio, video or image format; or software licenses for Free Software / Open-source software like the BSD License and others. Actually, Wikipedia itself can be distributed via BitTorrent for the same reason.
- Public domain. Works that are in the public domain and therefore not (or no longer) subject to copyright law can also be legally distributed. For instance, Project Gutenberg regularly collects and publishes classical cultural works after their copyright has expired (which depends on the country the work was previously published).
- Fair use. Some countries also have fair use provisions in copyright law, which allow people the right to access and use certain classes of copyrighted material without breach of the law.

There are also experiments at legally selling content that is distributed over BitTorrent using a "secure" tracker system.

Improving torrent reliability [edit]

Trackers are the primary reason for a damaged BitTorrent "swarm". (Other reasons are mostly related to damaged or hacked clients uploading corrupt data.) The reliability of trackers has been improved through two main innovations in the BitTorrent protocol.

Multi-tracker torrents [edit]

Multi-tracker torrents contain multiple trackers in a single torrent file. This provides redundancy in the case that one tracker fails, the other trackers can continue to maintain the swarm for the torrent. One disadvantage to this is that it becomes possible to have multiple unconnected swarms for a single torrent where some users can connect to one specific tracker while being unable to connect to another. This can create a disjoint set which can impede the efficiency of a torrent to transfer the files it describes.

Trackerless torrents [edit]

Vuze (formerly Azureus) was the first BitTorrent client to implement such a system through the distributed hash table (DHT) method. An alternative and incompatible DHT system, known as Mainline DHT, was later developed and adopted by the BitTorrent (Mainline), µTorrent, Transmission, rTorrent, KTorrent, BitComet, and Deluge clients.

Current versions of the official BitTorrent client, µTorrent, BitComet, Transmission and BitSpirit all share compatibility with Mainline DHT. Both DHT implementations are based on Kademlia. As of version 3.0.5.0, Vuze (formerly Azureus) also supports Mainline DHT in addition to its own distributed database through use of an optional application plugin [MainlineDHT Plugin]. This potentially allows the Vuze (formerly Azureus) client to reach a bigger swarm.

Most **BitTorrent** clients also use Peer exchange (PeX) to gather peers in addition to trackers and DHT. Peer exchange checks with known peers to see if they know of any other peers. With the 3.0.5.0 release of Vuze, all major BitTorrent clients now have compatible peer exchange.

IPv6 support [edit]

One of the options for this HTTP based tracker protocol is the "compact" flag. This flag specifies that the tracker can compact the response by encoding IPv4 addresses as a set of 4 bytes (32 bits). IPv6 though are 128 bits long, and as such, the "compact" flag breaks IPv6 support. Trackers which support IPv6 clients thus currently ignore the compact flag. There have been mentions of a "compact6" flag,[*by whom?*] but this mechanism has not been adopted yet by the various BitTorrent clients.

Software [edit]

See BitTorrent tracker software *for a list of BitTorrent tracker software.*

opentracker from Dirk Engling powered one of the biggest BitTorrent trackers, The Pirate Bay tracker.

Atrack[4] is a high performance open source tracker designed to run on Google App Engine.

BitStorm[5] is a small tracker written in PHP which does not require a database and runs on any PHP compatible web server.

BitStorm 2 uses a MySQL database instead of flat file to improve scalability.

Hefur[6] is a standalone BitTorrent tracker written in C++, under the MIT license.

See also [edit]

- BitTorrent (protocol)

- BitTorrent client
- Comparison of BitTorrent tracker software
- Comparison of BitTorrent sites
- Bram Cohen
- Distributed hash table
- UDP tracker
- XBT Tracker – C++ BitTorrent tracker designed for performance (does not serve .torrent files or other web pages); requires MySQL

References [edit]

1. ^ Top BitTorrent Trackers Serve 30 Million Peers Across 4.5 Million Torrents . *TorrentFreak*. 6 July 2013. Retrieved 27 October 2013.
2. ^ "Worlds most resiliant tracking" . November 17, 2009. Retrieved February 18, 2012. "... Now that the decentralized system for finding peers is so well developed, TPB has decided that there is no need to run a tracker anymore, so it will remain down! ..."
3. ^ Jones, Ben (15 January 2008). "Trading BitTorrent Tracker Invites, Commodity or Curse?" . *TorrentFreak*. Retrieved 23 October 2010.
4. ^ http://repo.cat-v.org/atrack/
5. ^ https://ck3r.org/tracker/ui.php
6. ^ https://github.com/abique/hefur

External links [edit]

- Atrack
- BitStorm
- BitStorm 2
- Mainline DHT plugin

v· t· e·	BitTorrent
Companies	BitTorrent, Inc. · Vuze, Inc. ·
People	Eric Klinker · Bram Cohen · Ashwin Navin · Ross Cohen ·
Technology	Broadcatching · Distributed hash tables · DNA · index · Peer exchange · Protocol encryption · Super-seeding · **Tracker** · Vocabulary · Torrent file · µTP ·
Clients (comparison, usage share)	BitTorrent (original client) · BitComet · BitSpirit · BitTornado · Deluge · FrostWire · KTorrent · LimeWire · Miro · MLDonkey · qBittorrent · rTorrent · Shareaza · Transmission · Tribler · µTorrent · Vuze (formerly Azureus) · Xunlei · libtorrent (library) ·
Tracker software (comparison)	opentracker · PeerTracker · XBT Tracker · EasyTracker ·
Open Trackers	OpenBitTorrent · PublicBitTorrent ·
Search engines (comparison)	BTDigg · Burnbit · Demonoid · d2 · EZTV · KickassTorrents · Mininova · Seedpeer · The Pirate Bay · Torrentz · yourBittorrent · YouTorrent · What.CD · BitSnoop ·
Defunct websites	isoHunt · FlixFlux · BTJunkie · LokiTorrent · OiNK · TorrentSpy · Suprnova · BitGamer ·
Related topics	aXXo · BitTorrent Open Source License · MPAA · Peer Media Technologies · TorrentFreak · Slyck.com ·

Categories: Application layer protocols | BitTorrent | Servers (computing)

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